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"The lengths of the flights were measured by a Richard anemometer which was attached to the machine. The records were found to agree closely with the distance measured over the ground when the flights were made in calm air over a straight course; but when the flights were made in circles a close comparison was impossible because it was not practicable to accurately trace the course over the ground. In the flight of October 5th a total of 29.7 circuits of the field was made. The times were taken with stop-watches. In operating the machine it has been our custom for many years to alternate in making flights, and such care has been observed that neither of us has suffered any serious injury, though in the earlier flights our ignorance and the inadequacy of the means of control made the work exceedingly dangerous.

"The 1905 flyer had a total weight of about 925 pounds, including the operator, and was of such substantial construction as to be able to make landings at high speed without being strained or broken. From the beginning the prime object was to devise a machine of practical utility, rather than a useless and extravagant toy. For this reason extreme lightness of construction has always been resolutely rejected. On the other hand, every effort has been made to increase the scientific efficiency of the wings and screws in order that even heavily built machines may be carried with a moderate expenditure of power. The favorable results which have been obtained have been due to improvements in flying quality resulting from more scientific design and to improved methods of balancing and steering. The motor and machinery possess no extraordinary qualities. The best dividends on the labor invested have invariably come from seeking more knowledge rather than more power."

Very respectfully,

(Signed) ORVILLE WRIGHT.

(Signed) WILBUR WRIGHT.

#### SCIENTIFIC NOTES AND NEWS.

DR. WALTHER NEERNST, professor of physical chemistry in the University of Berlin, will give this year the Silliman lectures at Yale University.

SIR GEORGE DARWIN arrived in New York on March 23. He will represent the Royal Society, the British Association, the Royal Institution and the University of Cambridge at the anniversary meeting of the American Philosophical Society to commemorate the two

hundredth anniversary of the birth of Benjamin Franklin, its founder.

DR. HEINRICH BRUNS, professor of astronomy at Leipzig, and Dr. Hugo von Seeliger, professor of astronomy at Munich, have been elected corresponding members of the Berlin Academy of Sciences.

PROFESSOR ROBERT KOCH, of Berlin, has been elected a foreign member of the Brussels Academy of Sciences.

PROFESSOR J. M. PERNTER, director of the Vienna Meteorological Bureau, has been elected an honorary member of the London Meteorological Society.

PROFESSOR WILLIAM A. KELLERMAN, of the Ohio State University, has returned from Guatemala where for three months he has been studying and collecting parasitic fungi. He reports a very interesting and satisfactory trip, and brings from several sections, especially from the higher altitudes including three volcanoes, a very large quantity of material for critical study. No mycologist has traversed these regions before, and it is expected that interesting results will be secured.

DR. PAUL KUCKUCK, curator of the Biological Institute of Heligoland, has been granted the title of professor by the German government.

M. BOUQUET has been appointed astronomer in the Paris Observatory.

DR. F. W. CLARKE, professor of mineral chemistry, George Washington University, will give a special course of lectures in chemical geology on Mondays at 4:50 P.M. as follows:

April 2.—'Introductory: The Elements and the Atmosphere.'

April 9.—'The Hydrosphere.'

April 16.—'The Magma and the Igneous Rocks.'

April 23.—'The Sedimentary Rocks.'

April 30.—'Ore Deposits.'

May 7.—'Coal, Petroleum and Natural Gas.'

MR. WILLIAM SOWERBY, for many years secretary of the Royal Botanic Society, Regent's Park, died in Hertfordshire, on March 9.

THE death is also announced of Dr. Hermann Lorberg, associate professor of physics in the University of Bonn; of Albert Nilsson,

lecturer in the School of Forestry at Stuttgart; and of Dr. v. d. Crone, assistant in plant physiology in the Agricultural School at Bonn-Poppelsdorf.

THERE will be a New York state civil service examination, on April 14, to fill the position of zoologist in the education department, vacant by the death of Dr. F. C. Paulmier. The candidate should be well versed in systematic and descriptive zoology and possess an acquaintance with the species of the New York fauna, especially those of mammals, birds, reptiles, fishes and mollusks. Museum experience in the care of such collections, in mounting, labeling and disinfecting, is essential, as the work is in a large degree curatorial. The salary is \$1,200.

WE learn from the daily papers that, on March 27, Dr. Alexander Graham Bell's tetrahedral kite was put to use in some experiments, near Washington, with wireless telegraphy. It has been found troublesome to send messages across the Atlantic for want of towers in midocean. The idea of sending up kites of the tetrahedral pattern from midocean station steamers would solve the problem. Dr. Bell loaned one of his largest kites, having 230 cells, which was operated by W. F. Bedwin. The kite was sent up 2,000 feet, and from antennæ 400 feet long messages were caught and transmitted down over a steel wire. Messages were received from the United States naval wireless station at the Washington navy yard, from the De Forest station at Galilee, N. J., near Atlantic Highlands, and from the steamer Bermudian, 100 miles out from New York and more than 350 miles from the kites.

THE New York *Evening Post* states that Dr. T. Mitchell Prudden, professor of pathology at Columbia University and a graduate of Yale University, has given to the Peabody Museum of Yale University his collection of archeological objects connected with the ancient cliff-dwellers and Pueblos of southern Utah, southern Colorado, and the territories of Arizona and New Mexico, as well as some modern Pueblo material. The collection con-

sists largely of pottery, textile fabrics, ornaments and objects used in ancient religious rites. With the collection Dr. Prudden gives the necessary cases, his field notes, and a map of the region drawn by himself.

THE sixth meeting of the Association of Teachers of Mathematics in the Middle States and Maryland will be held at Teachers College, Columbia University, on April 14.

We learn from *Nature* that the position of the South Africa medal fund for the endowment of a medal and scholarship or studentship in commemoration of the visit of the British Association to South Africa in 1905 is stated in a circular just issued by Professor J. Perry, honorary treasurer to the fund. The subscriptions promised or paid amounted to £752; and to this the council of the British Association has resolved to add the unexpended balance of the special South African fund, amounting to about £800. The following report of the executive committee was adopted at a meeting of subscribers on March 2, and approved by the council of the British Association:—(a) That the fund be devoted to the preparation of a die for a medal to be struck in bronze, 2½ inches in diameter, and that the balance be invested and the annual income held in trust; (b) that the medal and income of the fund be awarded by the South African Association for the Advancement of Science for achievement and promise in scientific research in South Africa; (c) that, so far as circumstances admit, the award be made annually.

THE German government has decided to establish a meteorological station on Lake Constance, near Friedrichshafen. It will cost \$15,000, the states of Bavaria, Württemberg, Baden and Alsace-Lorraine joining in the expense. Extensive study of the atmosphere will be made daily by means of kites from specially constructed boats on the lake. Similar stations already exist in northern Germany at Lindenberg and Hamburg, and plans are being made to erect another station in the northeast.

MR. FEE writes, in a consular report, that the new standard time for India was adopted

in Bombay, on January 1, and is gradually overcoming the prejudice incident to a new departure. He further says: "The Indian standard time is in advance five hours and thirty minutes of Greenwich time, being nine minutes faster than Madras time, about twenty-four minutes slower than Calcutta time, and about thirty-nine minutes faster than Bombay local mean time, the longitude of the city of Bombay being  $72^{\circ} 52'$  east of Greenwich. Five hours and thirty minutes advance of Greenwich time would be the local mean time for longitude  $82^{\circ} 30'$  east of Greenwich. This parallel of longitude passes through India at about the eastern mouth of Godavery River in the Bay of Bengal, and near Benares, the sacred city of the Hindus, on the Ganges River. It is the local mean time of this parallel that now sets the standard of time for all India.

#### UNIVERSITY AND EDUCATIONAL NEWS.

MR. ANDREW CARNEGIE has given \$2,000,000 in addition to previous gifts for the maintenance of the Carnegie Technical Schools, Pittsburgh. It is also announced that Mr. Carnegie has expressed a desire that the Margaret Morrison Carnegie School for Women be completed as soon as possible, and has assured the committee that he will meet the expense.

By the will of the late Andrew J. Dotger, of South Orange, N. J., the Tuskegee Institute will receive \$655,000 on the death of his wife.

It is announced that about \$50,000 has already been raised for the new professorship of lumbering in the Yale Forest School of the \$150,000 which is sought as an endowment. In fourteen western states \$44,000 was raised from sixty contributors, representing in the main corporations and firms.

OFFICIAL announcement has been made of the establishment of a Colonial School to be conducted by Yale and Columbia Universities. The school is intended to prepare students for work in foreign countries, in federal service, business enterprises or missionary or scientific work. The courses include six divisions—languages, geography, ethnography, history,

economics and law. There will be a three-year course for candidates for the consular service and two years for other candidates. Students will receive a joint certificate, signed by the presidents of Yale and Columbia Universities.

THE Morton Memorial Laboratory of Chemistry of the Stevens Institute of Technology, erected at a cost of \$150,000 by the alumni in memory of Dr. Henry Morton, former president of the institute, is now occupied by classes.

THE main building of the University of Idaho was destroyed by fire on March 30.

PROFESSOR A. W. WRIGHT has announced his intention to retire from active service as professor of experimental physics and director of the Sloane Physical Laboratory of Yale College, at the close of the present academic year. Professor Wright graduated from Yale University in 1859, received the degree of doctor of philosophy in 1861 and has been professor there since 1872. He will be succeeded by Dr. Henry A. Bumstead, assistant professor in the Sheffield Scientific School. Professor Eugene L. Richards, who graduated from Yale in 1860 and has taught there since 1868, will retire from the chair of mathematics at the close of the present year.

PROFESSOR HOWARD EDWARDS, who holds the chair of modern languages in the Michigan Agricultural College, has accepted the presidency of the Rhode Island institution to succeed Kenyon L. Butterfield, who has been called to the presidency of the Massachusetts College.

DR. RALPH B. PERRY, assistant professor of philosophy at Harvard University, has declined the call to a chair of philosophy at Leland Stanford University.

MR. LOUIS A. MARTIN, JR., M.E. (Stevens), M.A. (Columbia), has been promoted from instructor to assistant professor of mathematics and mechanics in Stevens Institute of Technology.

DR. W. A. THORNTON has been appointed to the newly-created professorship of electrical engineering at Armstrong College, Newcastle.